

CHAPTER 4. COMPUTER-BASED INSTRUCTION (CBI)

SECTION 1. GENERAL

4-1. GENERAL. This chapter establishes policy and procedures for CBI.

4-2. RELATED TERMINOLOGY.

a. Air Traffic Training WEB Page. An FAA Internet WEB site that contains a list of national and site specific lessons under development, CBI national course catalog, forums, and other training information. ([HTTP://WWW.AMA500.JCCBI.GOV](http://WWW.AMA500.JCCBI.GOV))

b. Authorware. Icon-driven programming language software used to automate computerized courseware.

c. CBI. Computer-based instruction.

d. CBI Platform. The computer hardware, software, and support equipment used to develop and deliver CBI lessons.

e. CBI Hot Line. CBI hardware and software technical support. For CBI hardware, courseware distribution, and CMI technical support call (405) 954-4568. To report content or technical problems with CBI courseware, receive assistance operating CBI courseware, and request development materials call (405) 954-4000.

f. CD-ROM. A compact disc containing data that can be read by a computer.

g. CMI. Computer-managed instruction. CMI is a computer program that is utilized to assign, monitor, and provide credit for CBI training.

h. CMI Compliance. Courseware that is executable on the CBI platform under CMI.

i. Courseware. Lessons delivered on CBI.

j. Courseware Validation. Verification of technical accuracy, meeting training requirements, courseware functionality, and program execution.

k. Locally Developed Lesson. A CBI lesson developed by a field facility.

l. Local Development Site (Facility). A facility with CBI development capability.

m. MPAS. Micro PLATO Authoring System. PLATO courseware converted to run on the CBI platform.

n. Site Administrator. Individual responsible for administration of local CBI training and development. The TA may also serve in this capacity.

o. Site Developer. Person designated to develop local CBI courseware, etc.

p. Source Code. Uncompiled computer programming, graphics including individual graphic components, wav files, text files, development and debugging tools, and any other course or lesson files related to the program in a format compatible with the CBI platform.

q. SYSOP. System operator responsible for ensuring that WEB page software and hardware is operational.

SECTION 2. CBI USE AND SYSTEM CONFIGURATION MAINTENANCE

4-3. CBI USE AND MAINTENANCE. The CBI platform shall be used for training purposes. Facility Managers shall provide reasonable access to CBI courseware and platforms to all employees.

a. The CBI platform shall not be used as dedicated general office automation machines or for functions not related to training.

b. The CBI equipment belongs to the FAA. The ownership of resource allocation under the program belongs to Air Traffic. The Training Division, ATX-100, through coordination with regional offices, reserves the right to reallocate resources where the needs of the program dictate. All courseware/software developed by using the CBI platform, other Government equipment, and/or Government time is the property of the FAA.

c. Data output shall be limited to information required for training purposes.

d. CBI equipment shall be located in a secure space, thereby controlling access to prevent theft, vandalism, or violation of privacy. The central processing unit (CPU) chassis shall be locked and the keys stored in a secure area.

e. The hardware and software configurations of the CBI equipment are under national configuration management. Data on the C drive and the E drive are required for the CMI to operate properly. Additions, deletions, or modifications to data on these drives are prohibited without the express written consent of ATX-100.

f. Copyrighted materials (e.g., music, graphics, video, maps, text, cartoons, or programming code) shall not be used without the appropriate license.

g. All CBI training shall be logged in the Training and Proficiency Record, FAA Form 3120-1, or in the TRAX computer program.

SECTION 3. CBI COURSEWARE AND LESSON DEVELOPMENT

4-4. NATIONAL LESSON DEVELOPMENT. The National lesson development process shall include the following steps:

(1) Initial Design.

(a) During the initial design, the developer shall define the target audience for the lesson, objectives and skills to be trained, the content to be presented, and the methods (e.g., tutorials, simulations, questions, games, etc.) and media (e.g., video, audio, graphic, etc.) to be used.

(b) Lesson design shall emphasize student control of movement through the lesson, interactivity, and immediate feedback.

(c) The design documents shall be approved by ATX-100 prior to lesson development.

(2) Lesson Development.

(a) During this step, the developer shall outline the content to be presented, create the lesson storyboards, and write the test questions.

(b) Lesson storyboards shall include a written description of CBI lesson screens, animation's and sound

(c) Storyboards shall be approved by ATX-100 prior to programming..

(3) Programming

(a) CBI lessons shall include save-place capability, page numbering or screen referencing, a help/reference menu, and a glossary of terms.

(b) Courseware shall be CMI compliant.

(c) CBI lessons shall be developed using Authorware. The version of Authorware shall be specified by ATX-100.

(d) All CBI lessons shall utilize the standard Air Traffic navigation template.

(e) Requests to deviate from CBI programming requirements shall be submitted in writing to ATX-100 for approval.

(4) Courseware Validation.

(a) The developer shall review and correct all known errors in the CBI lesson before delivery to the FAA.

(b) ATX-100 shall validate the course to ensure that the CBI lesson is technically accurate, meets training requirements, and the lesson works as intended.

(c) Following courseware validation, ATX-100 may conduct a field test with a representative sample of employees (See Figure 4-1 for a optional checklist for reviewing draft CBI lessons).

(5) Finalizing.

(a) Lessons will be finalized upon completion of courseware validation corrections.

(b) Prior to lesson approval by ATX-100, the following deliverables shall be received:

1. Application or executable files.
2. Programming source code.
3. Copies of electronic clip media files used to assemble the courseware.
4. Master audio tape used to create audio files.
5. Training lesson supplements.
6. Master video tape and any digital video files.

FIGURE 4-1. CBI LESSON CHECKLIST

Instructions: You may want to use this checklist when reviewing draft CBI lessons.

1. Instructions on how to use the lesson are clear.	" Yes	" No
2. Opportunities are provided for reviewing completed sections of the lesson where appropriate.	" Yes	" No
3. Opportunities are provided to exit the lesson. When returning, individuals can begin at the exit point rather than starting over.	" Yes	" No
4. Lesson length does <u>not</u> exceed 20 to 30 minutes <u>or</u> the lesson is divided into separate modules.	" Yes	" No
5. Interactions are frequent and meaningful (i.e., require thought, not just pushing a key).	" Yes	" No
6. Motivation/interest is maintained throughout the lesson. When possible, the pace of the lesson is under the user's control.	" Yes	" No
7. Selected media support the lesson content and are not distracting.	" Yes	" No
8. Lesson content and references are technically correct. Lesson completion date and/or date of the last technical update is provided.	" Yes	" No
9. Lesson content, graphic images, video, and audio are free of racial, ethnic, gender, and other stereotypes.	" Yes	" No
10. Lesson content is sequenced in a logical progression.	" Yes	" No
11. Lesson content is at the appropriate level of depth for the objectives and for the intended users.	" Yes	" No
12. Lesson content is complete. No key concepts or information have been omitted.	" Yes	" No
13. Clear and simple sentences are used. Screen formats are attractive and uncluttered.	" Yes	" No
14. Test items are fair and provide all information needed to respond. Subject-matter experts have reviewed the test items.	" Yes	" No
15. Feedback is provided after each response. Explanations are provided on <u>why</u> a response is correct or incorrect.	" Yes	" No
16. All paths and branches have been tested to ensure that the lesson is free of bugs.	" Yes	" No

4-5. LESSON DISTRIBUTION.

a. National distribution shall be authorized by ATX-100. Targeted facilities shall receive:

- (1) CD-mastered lessons as they become available.
- (2) Videodisk lessons as required.

b. Lesson distribution shall include written information on the target audience, any required prerequisite knowledge, a summary of the course content (including course length), and the type of training (e.g., mandatory, annual, currency, required, etc.).

c. Source-code versions of lessons may be requested from the CBI hotline staff, and shall be provided to site developers as instructed by ATX-100.

4-6. COURSEWARE MODIFICATION AND MAINTENANCE.

a. All national and site specific CBI development shall be logged on the Air Traffic Training WEB site.

b. Local site modifications to a national lesson shall be limited to adding or supplementing relevant site specific content without disabling functionality, impacting CMI compatibility, or removing course content.

c. Maintaining technical accuracy and currency in locally developed or modified lessons shall be the responsibility of the development site.

4-7. STUDENT INFORMATION.

a. A student's Social Security number shall be used to register for CBI lessons and to maintain student training records.

b. Student information shall be limited to those items needed for enrollment purposes and for updating training records and lesson validation.

4-8. QUALITY CONTROL. Technical accuracy and validity of site-developed courseware/software utilized locally are the responsibility of the developing site or hub. Direct distribution of site specific lessons between sites is permitted, however the receiving site is responsible for ensuring the accuracy and validity of the site specific courseware.

4-9. AIR TRAFFIC TRAINING SITE.

a. **Purpose.** The Air Traffic Training WEB site shall provide information for site developers and administrators.

(1) Site developers may share and exchange information on available resources (e.g., FAA-developed graphics, site-developed lessons, or knowledge of active lesson development).

(2) Training/site administrators shall be able to obtain on-line support for lesson development and delivery.

b. Management. The SYSOP shall evaluate requests received via the Air Traffic Training WEB site and respond appropriately.

(1) The SYSOP shall maintain a current system operation scheme to include service rules, log-in/access procedures and requirements, and a system backup plan.

(2) Excluding weekends and holidays, the Air Traffic Training WEB site operating hours shall be 7:00 a.m. to 6:00 p.m. eastern time.

c. Content. The CBI SYSOP shall maintain the following information for users of the Air Traffic Training WEB site:

(1) A library of FAA-owned or FAA-created graphics, templates, and programs, which shall be made available for dissemination and distribution through the WEB site.

(2) A log of active and proposed development projects, validated lessons, and courseware, including information on the training needs to be met, the target audience, and a synopsis of content.